

Changkat Changi Secondary School
Physics Department
Upper Secondary

Name: _____ () Class: _____ Date: _____

TOPIC : Kinematics

WORKSHEET 2.1

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A. MULTIPLE CHOICE QUESTIONS (6 marks)

1. A truck takes 10s to travel the first 40 m , and another 20s to travel a further 110 m. What is its average speed?

A 0.20 ms⁻¹ **B** 2.3 ms⁻¹ **C** 4.0 ms⁻¹ **D** 5.0 ms⁻¹

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2. Study the statement below. Which one/ones, is/are correct?

- I Speed is velocity in a specific direction.
- II Speed is the rate of change in distance.
- III Velocity of a particle should be specified by magnitude and direction.
- IV Velocity is the change in speed in a specific direction.

A I and II only **B** II and III only
C III and IV only **D** I and IV only

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3. In what way is velocity different from speed?

- A** Velocity is measured horizontally.
- B** Velocity means the distance divided by time.
- C** Velocity describes speed of an object in a specific direction.
- D** Velocity is measured in metres per second.

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4. Which one of the following statements is *false*?

- A** The displacement of a boy jumping into the air and returned to the same spot on the ground is zero.
- B** The velocity of the earth as it orbits round the sun in circular motion is constant.
- C** Acceleration is the change in velocity over a period time.
- D** The speed of an object is not always in the same direction as its velocity.

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5. A train starts from rest and steadily increases its velocity to 15m/s in one minute. Its acceleration is _____.

A 0.25 m/s² **B** 0.90 m/s² **C** 10 m/s² **D** 900 m/s²

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6. A car travelling at 20 m/s is braked and brought to rest with uniform deceleration in 4 s. Each of the following statements is false except that

- A its acceleration is 5 m/s^2 .
- B its deceleration is -5 m/s^2 .
- C its acceleration is -5 m/s^2 .
- D its deceleration is 5 m/s^1 .

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B. STRUCTURED QUESTIONS (9 marks)

7. A motor cycle travelling on a straight road takes 5 s to increase its speed from 20 m s^{-1} to 30 m s^{-1} . What is its average acceleration? [2]

8. A motorist slows down from 30 m s^{-1} to 10 m s^{-1} in 10 seconds. Calculate its deceleration. [2]

9. The BMW 320i claims that it can accelerate from rest to 100 km h^{-1} in 10.7 s. What is its acceleration in m/s^2 ? [2]

10. (a) A car travels around a circular track at a constant speed of 40 km/h . Explain why the car's velocity is not constant. [1]

- (b) Is the car accelerating? Explain your answer. [2]
